

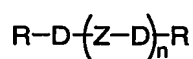
CLAIMS

1. Process for the preparation of a hydrocarbylated metal organic compound,  
5 comprising a hydrocarbyl group, a spectator ligand and optionally a ligand, by contacting a metal-organic reagent with a spectator ligand in the presence of at least 2 equivalents, with respect to the metal-organic reagent, of a hydrocarbylating agent.
2. Process according to claim 1, wherein the hydrocarbylating agent comprises a  
10 metal or a metalloid chosen from group 1, 2, 11, 12, 13 or 14 is a metal or metalloid comprising agent.
3. Process according to claim 2, wherein the hydrocarbylating agent comprises Li, Mg, Zn, or Al.
4. A process according to claim 1-3, wherein the spectator ligand is an imine  
15 ligand, or the HA adduct thereof, wherein HA represents an acid, of which H represents its proton and A its conjugate base.
5. A process according to claim 4, wherein the metal of the metal-organic reagent is a group 3-11 metal.
6. A process according to claim 1-3, wherein the spectator ligand is represented  
20 by  $(HA_1)_q (-Z)_n (A_2H)_r$ , wherein  $A_1$  and  $A_2$  are monoacidic cyclopentadienyl comprising ligands, with q and r representing an integer denoting the number of Cp ligands with  $q+r = 1$  or 2, optionally linked by n bridging groups Z,  $A_1$ ,  $A_2$  separately, or bonded via Z together forming a bidentate diacidic spectator ligand and n being an integer denoting the number of parallel bridging groups  
25 Z.
7. A process according to claim 1-3, wherein the ligand is a ligand according to the formula  $HCp^*-Z-Y(H)_b$ , in which  $Cp^*$  is a delocalized  $\eta^5$  bonding cyclopentadienyl comprising ligand, Z is a moiety comprising boron, or a member of Group 14, and also sulfur or oxygen, said moiety having up to 20  
30 non-hydrogen atoms, and optionally  $Cp^*$  and Z together form a fused ring system and  $b=0$  or 1.
8. A process according to claim 6 or 7, wherein the metal is a group 4, or 5 metal or metalloid, or a metal selected from the lanthanide series.
9. A process according to claims 1 to 3, wherein the ligand, represented by  
35  $(Ar-Z)_s Y(-Z-R'_n)_q$ , with, Y representing an anionic moiety, Z an optional

bridging group between the Y moiety and the  $DR'_n$  and/or Ar group, D an electron-donating hetero atom chosen from group 15 or 16, R' an optional substituent, Ar an electron-donating aryl group, n the number of R' groups bonded to D, q and s integers with  $q + s \geq 1$ .

5 10. A process according to claim 9, wherein the metal is a group 4 metal with a valency of 3.

11. A process according to claim 1-3, wherein the ligand is represented by

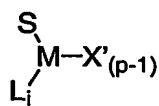


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wherein Z is a bridging group, between two donor atom containing groups (D), D an electron-donating group comprising a hetero atom chosen from group 15 or 16, and R is a substituent.

12. A process according to claim 11, wherein the metal is a metal from  
15 group 7-11.

13. Hydrocarbylated metal organic compound according to formula 10,



(formula 10)

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containing a spectator ligand S equal to  $(Ar-Z)_s Y(-Z-DR'_n)_q$ , with, R an optional bridging group between the Y moiety and the  $DR'_n$  and/or Ar group, D an electron-donating hetero atom chosen from group 15 or 16, R' an optional substituent, Ar an electron-donating aryl group, n the number of R' groups  
25 bonded to D, q and s integers with  $q + s \geq 1$ , X' is an hydrocarbyl radical bonded to the group 4-6 metal M with a reduced oxidation state p, L a neutral Lewis basic ligand bonded to M, j representing an integer denoting the number of ligands L, characterized in that Y is an imine group.

14. Hydrocarbylated metal organic compound according to claim 13 wherein the  
30 imine is a ketimide, phosphinimide, guanidine, or iminoimidazoline.

15. Hydrocarbylated metal organic compound according to claim 14, comprising a group 4-6 metal M in the reduced oxidation state, further comprising a spectator ligand having an imine group wherein Y, R and D are part of an

aromatic ring system, optionally containing  $sp^3$ ,  $sp^2$  or  $sp$  hybridized atoms or combinations thereof.

16. Hydrocarbylated metal organic compound according to claim 13 - 15, wherein the electron donating hetero atom containing group  $DR'_n$  is a ketimide, phosphinimide, guanidine, or iminoimidazoline.
17. Hydrocarbylated metal organic compound according to formula 10, containing a spectator ligand S equal to  $(Ar-Z)_sY(-Z-DR'_n)_q$ , wherein Y represents an anionic moiety of S bonded to M of the metal-organic compound, Z an optional bridging group between the Y moiety and the  $DR'_n$  and/or Ar group, D an electron-donating hetero atom chosen from group 15 or 16,  $R'$  an optional substituent, Ar an electron-donating aryl group, n the number of  $R'$  groups bonded to D, q and s integers with  $q + s \geq 1$ ,  $X'$  is an hydrocarbyl radical bonded to M with valency p, L a neutral ligand bonded to M, j representing an integer denoting the number of ligands L, characterized in that the electron donating hetero atom containing group  $DR'_n$  is a ketimide, phosphinimide, guanidine, or an iminoimidazoline.
18. Process for the preparation of a polyolefin in the presence of an activator, characterized in that the process is carried out in the presence of a metal-organic compound according to any of the claims 13 to 17.
19. Process according to claim 19, wherein the activator is a borane or a borate.